THE HONG KONG POLYTECHNIC UNIVERSITY
DEPARTMENT OF MANAGEMENT AND MARKETING

Departmental Research Seminar

Dynamic Bayesian Network–Based Product Recommendation Considering Consumers' Multistage Shopping Journeys: A Marketing Funnel Perspective
By

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Date : 18 Nov 2024 (Mon)
Time : 10:30 am – 12 noon
Venue : M802, PolyU

Abstract

Recommender systems are widely used by online merchants to find the products that are likely to interest consumers, but existing dynamic methods still face challenges regarding diverse behaviors, variability in interest shifts, and the identification of psychological dynamics. Premised on the marketing funnel perspective to analyze consumer shopping journeys, this study proposes a novel machine learning approach for product recommendation, namely, multistage dynamic Bayesian network (MS-DBN), to model the generative processes of consumers' interactive behaviors with products in light of stage transitions and interest shifts. This approach features a dynamic Bayesian network model to overcome the problem of diverse behaviors and extract generalizable regularity of consumers' psychological dynamics, two latent layers to depict variability in consumers' interest shifts across multiple stages, and the identification strategies that dynamically detect the invisible stages and interests of consumers. Extensive experiments on large-scale real-world data and comprehensive robustness checks manifest the superior performance of the proposed MS-DBN approach over baseline methods.

Prof. Qiang Wei is a tenured professor at the School of Economics and Management, Tsinghua University, the Head of the Department of Management Science and Engineering, and the Deputy Director of the AI-Enabled Management Research Center. He received his Ph.D. in Management (2003) from Tsinghua University. In 2007, he became an International Faculty Fellow at the MIT Sloan School of Management. His research and teaching focuses on machine learning, business analytics, intelligent recommendation, decision making with uncertainties, etc. Prof. Wei has 120+ publications/50+ journal publications, such as *MISQ, ISR, JMIS, INFORMS JOC, ACM TKDD, Decision Science, DSS, I&M, Inf. Sci., ECRA,* and other channels. He has received 10+ grants as PI. His main academic affiliations include: Vice Chairman of the Chinese Association of Fuzzy Mathematics and Fuzzy Systems, Executive Board Member of the Chinese Statistics Society, Executive Board Member of the China's Information Economics Society, DSS AE, AE of Knowledge-Based Systems, etc.

All interested are welcome.

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